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| APPLICATION NO.                      | FILING DATE | FIRST NAMED INVENTOR      | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------|-------------|---------------------------|---------------------|------------------|
| 10/698,194                           | 10/30/2003  | Sivapackia Ganapathiappan | 10010060-7          | 3539             |
| 7590 06/01/2004                      |             |                           | EXAMINER            |                  |
| HEWLETT-PACKARD COMPANY              |             |                           | ZALUKAEVA, TATYANA  |                  |
| Intellectual Property Administration |             |                           | ART UNIT            |                  |
| P.O. Box 272400                      |             |                           | 1713                |                  |
| Fort Collins, CO 80527-2400          |             |                           | PAPER NUMBER        |                  |
| DATE MAILED: 06/01/2004              |             |                           |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/698,194

Applicant(s)

GANAPATHIAPPAN, SIVAPACKIA

Examiner

Tatyana Zalukaeva

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Claims 17-21 are pending.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 17, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Matyjaszewski et al (U.S. 6,121,371).

Matyjaszewski discloses a method for preparing amphiphilic polymer particles obtained by ATRP process, having polydispersities shown in the last column of Table 1 (col.9, 10 and claim 39). As an example, the use of the AMPA/Cu(II)Br<sub>2</sub> initiator system results in emulsions with smaller particle sizes e.g. 100 nm, which anticipates the range as instantly claimed (col. 7, lines 5-10). The process is best depicted by claim 1 polymerizing one or more radically (co)polymerizable monomers in the presence of a system comprising:

(a) a suspending medium,

(b) a monomer phase suspended in said suspending medium, comprising said monomers,

(c) a surfactant,

(d) an initiator having one or more radically transferable atoms or groups,

(e) a catalyst system comprising:

(i) a transition metal compound capable of participating in a redox cycle with the initiator and,

(ii) one or more N--, O--, P--, or S-- containing ligands which coordinate in a sigma-bond or in a pi-bond to the transition metal, any C containing compound which can coordinate in a pi-bond to the transition metal, or any carbon containing ligand which coordinates in a carbon-transition metal sigma-bond but which does not form a carbon-carbon bond with said monomer under the polymerization conditions, wherein said catalyst system is at least partially soluble in both said monomer phase and in a polymer phase generated during said polymerizing,

to form a (co)polymer emulsion or suspension.

The sequence of process steps is shown in a general procedure of Example 1, Example 2, 3. Step of filtering the reaction mixture is described in col.10, lines 53-57.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1713

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski et al (U.S. 6,121,371) in view of White et al (U.S. 6,642,301) Matyjaszewski does not specifically recognize the use of crosslinker in emulsion. However, he clearly motivates those skilled in the art to employ different monomers, including crosslinking monomers by stating that for the first time, (co) polymers from a **full range of free radically (co)polymerizable** monomers exhibiting the characteristics of "living" polymerization, i.e. predictable molecular weights and narrow, or controllable, molecular weight distributions, combined with the ability to prepare block, graft and

Art Unit: 1713

comb shaped copolymers, and (hyper)branched copolymers, were produced in an emulsion system.

White discloses ATRP process for copolymerization of hydrophobic and hydrophilic monomers in the presence of transition metal catalytic complex (abstract, col.2, lines 50-67, col.4, lines 33-45). Monomers are selected from vinyl and allyl monomers. Bisphenols, di- and tri-methacrylates are named in col.7, lines 1-5. These are crosslinking monomers. It would have been found obvious by those skilled in the art at the time the invention was made to broaden the range of Matyjaszewski's monomers, based on his suggestion and to utilize the crosslinking monomers of White employed in substantially similar process as Matyjaszewski, with the reasonable expectation of success.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matyjaszewski in view of Ito et al (U.S. 6,509,125).

Matyjaszewski does not specifically disclose the use of polymerizable dye monomer. However, motivation of Matyjaszewski should be considered, i.e. (co)polymers from a **full range of free radically (co)polymerizable** monomers exhibiting the characteristics of "living" polymerization, i.e. predictable molecular weights and narrow, or controllable, molecular weight distributions, combined with the ability to prepare block, graft and comb shaped copolymers, and (hyper)branched copolymers.

Ito discloses polymeric dyes that can be obtained by copolymerization of a polymerizable dye monomer with other polymerizable monomers by the polymerization methods known to those skilled in the art (see, for example, col.4, lines 7-12).

Art Unit: 1713

Therefore, motivated by suggestion of Matyjaszewski to utilize a "full range" of polymerizable monomers a person skilled in the art at the time the invention was made would have found obvious to utilize polymerizable dye monomers in lieu of one of comonomers of Matyjaszewski, and will thus arrive at the instantly claimed subject matter.

9. Other prior art references cited in PTOL-892 show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (571) 272-1115. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 26, 2004

Tatyana Zalukaeva  
Primary Examiner  
Art Unit 1713

